Defining Albumin Usage & Variation Across an Integrated Health System

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Introduction

Human Albumin (HA) is a crucial regulator of tissue fluid balance\textsuperscript{1}. Administration of exogenous HA can be effective in indicated scenarios; however, HA is often administered for indications that lack literature-based support\textsuperscript{1}. Given its high cost and existence of less expensive substitutes, HA usage within health systems should be examined. It is unclear how much variation exists among HA dispensation, and the value of self-service analytics tools for clinical content is unknown. We sought to define HA usage and variation at M Health Fairview (MHF), Minnesota’s largest integrated health system, by clinical diagnosis, provider specialty, and sites.

Methods

LogicStream\textsuperscript{TM}, an Electronic Health Record (EHR) analytics software, was used to identify HA usage trends across MHF from 07/2018 – 07/2019. Two high volume hospitals comprised the majority of HA dispensation: University of Minnesota Medical Center (UMMC) and Fairview Southdale Hospital (FSH). Clinician HA ordering data was collected at hospital, provider, specialty and diagnosis levels. Variation by volume and unique patients was assessed.

Results

The top five “Clinical Diagnosis Categories” were “Other Nervous System Disorders” (10,735), “Complication of Device; Implant or Graft” (10,121), “Disorders of Lipid Metabolism” (7,033), “Septicemia” (5,318) and “Coronary Atherosclerosis and Other Heart Disease” (5,172) (Figure 1). When total quantity of HA dispensed per number of unique patients was considered, variations were noted across each category (Figure 1). Throughout UMMC and FSH, “Cardiology,” “Nephrology,” and “Surgery” were among the top usage specialties (Figure 2).

Discussion

Our analysis demonstrates the value of EHR analysis tools in identifying variation in HA utilization, which was observed across provider and diagnosis categories. This is likely in part due to different diagnoses requiring administration of varying HA quantities. However, variations were large, suggesting lack of provider standardization. The data also showed the significant impact of a small number of high-use outliers. One data limitation is that patients may have multiple comorbidities, and the diagnosis indicated for HA may differ from the captured “primary diagnosis.” A long-term goal is to interview providers across departments to understand habits and awareness of best practice literature, and leverage analytics tools to reduce costs without forfeiting on quality of patient outcomes. These interviews will help identify interventions to reduce unnecessary, literature-unsupported usage.

References